

17-4 4900 1.00  
Work Order ID 78909

\*78909\*

Page 1

Item ID: D3691-1 Accept \*N900040100\* Setup Start \*NS1\*  
Revision ID: Stop \*NS2\*  
Item Name: STUD  
Start Date: 17/01/2012 Start Qty: 6.00 \*6\* Cust Item ID:  
Required Date: 31/01/2012 Req'd Qty: 6.00 \*6\* Customer:  
Reference:

Approvals: Process Plan: M.L.J Date: 12/01/17 Tooling: Date: Run Start \*NR1\*  
QC: Date: SPC (Y/N): Date: Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D3691	Rev D

100	BAND SAW	0.00							
*100*									
Bandsaw	Memo	0.00							
Jeaspa Bandsaw	***DO NOT USE CHOP SAW***								
	Cut blank 7.750" long								

110	DOOSAN LATHE	0.00							
*110*									
Doosan	Memo	0.00							
Doosan Lathe	1-Turn as per Folio FA716 Rev: AA & Dwg D3691 Rev: D 2-Deburr per dwg D3691 3-Check .625" bore with DT9530 GO/NO GO Gauge								

160	QC2- Inspect parts off machine FAI/FAIB	0.00							
*160*									
QC	Memo	0.00							
Quality Control									

12/3/19

W/O: 78909		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3691-1 PAR #: \_\_\_\_\_ Fault Category: Machining NCR: Yes No DQA: Pat Date: 12/01/09  
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: CK Date: 12/4/11

NCR: 12-1323		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/3/19	110	2 parts → .625 +.004/-0.000 dimension too big. .638 - measuring probe probably sticky after changing insert on boring bar	✓ 12/03/23 12/04/11 251042	CRITICAL PART SCRAP 12.03.23	✓ 12/4/19 Simon Dawson	OK 12/03/28	✓ 12/03/23	✓ 12/03/23

128.51 x 2 = 257.02

NOTE: Date &amp; initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 78909

\*78909\*

Page 3

January-17-12 8:58:16 AM

Item ID: D3691-1 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: STUD

Start Date: 17/01/2012 Start Qty: 6.00 \*6\* Cust Item ID:  
 Required Date: 31/01/2012 Req'd Qty: 6.00 \*6\* Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
175 *175* QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00		5120402		(+5)			
180 *180* Packaging Packaging	Identify as per dwg & Stock Location: GA  Memo	0.00 0.00		80 12/04/03		(5)			
190 *190* QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00 0.00							12/4/3

12043

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

January-17-12 8:58:20 AM

Page 1

Work Order ID: 78909

\*78909\*

Parent Item: D3691-1

\*D3691-1\*

Parent Item Name: STUD

Start Date: 17/01/2012

Required Date: 31/01/2012

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP Rev:A New Issue 08-01-29 JLM Veriified By:EC  
IPP Rev:B Material Change 09-01-07 JLM Verified By:EC IPP  
REV:C AS PER REV D 10-03-16 JLM VERIFIED BY:EC  
IPP Rev:C Added note on Step 2 09-01-26 JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M174PH-H900R1.000		Purchased	No				f	21.2000		4.382191			
*M174PH-H900R1 000*									**				
17-4SS H900 ROUND BAR 1.00													

Location	Loc Qty	Loc Code
MAT030	21.2	
117445	21.2	
117446?		

51 1213128

4.7 dt

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 78909
<b>Description:</b> Stud		<b>Part Number:</b> D3691-1
<b>Inspection Dwg:</b> D3691	<b>Rev:</b> D	<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.695	+/-0.010	Ø. 200	/		SL-9	U/L
45°	0.5°	45°	/			
0.625	+0.004/-0.000	-627	/			
1.25	+0.000/-0.03	1.230	/			
118°	0.5°	118°	/			
R0.03	+/-0.030	R.032	/		R.G.	
0.11 Ref	+/-0.030	.11	/			
90°	0.5°	90°	/			
Ø0.189	+0.005/-0.001	Ø.191	/			
1.31	+/-0.030	1.31	/			
1.65	+/-0.030	1.65	/			
0.750	+0.000/-0.010	.750	/			
Ø0.659	+0.000/-0.015	Ø.648	/		SL-5	M.x
7.625	+/-0.015	7.624	/			
2.90	+/-0.030	2.715	/			
3/4-16UNF-2A	N/A		/			
0.075 x 45°	+/-0.010 x 0.5°	0.75 x 45°	/			
0.375	+0.000/-0.010	.375	/			
Ø0.189	+0.005/-0.001	.191	/			
R0.25	+/-0.030	R.25	/		R.G.	
R0.50	+/-0.030	R.50	/			

**Measured by:** SA  
**Date:** 12/3/19

**Audited by:** amf  
**Date:** 12/03/28

**Prototype Approval:** N/A  
**Date:** N/A

Rev	Date	Change	Revised by	Approved
A	09.05.11	New Issue	KJ	
B	09.11.04	Dwg Rev updated	KJ	
C	10.03.31	Dimensions revised per Dwg Rev D	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

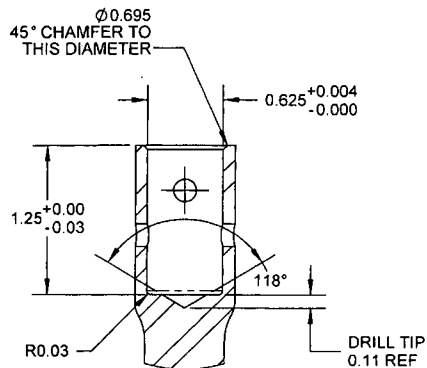
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

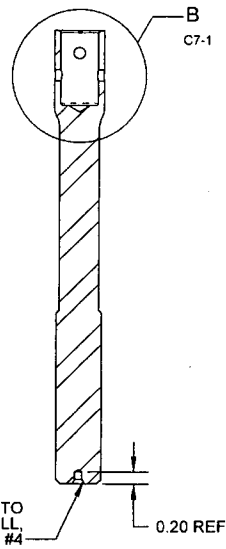
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

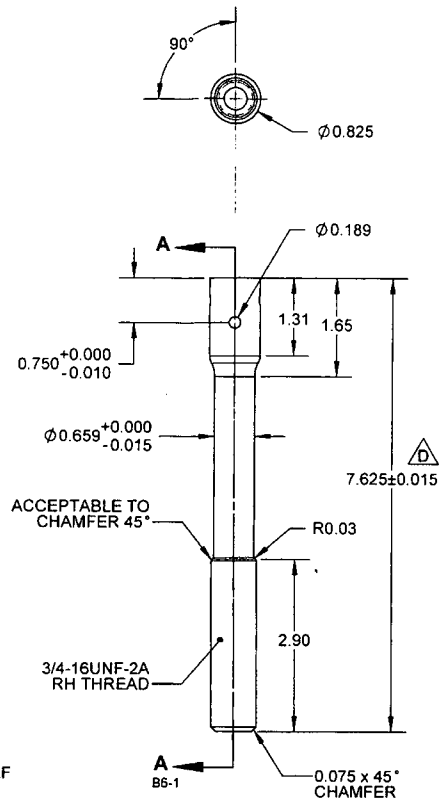
8 7 6 5 4 3 2 1



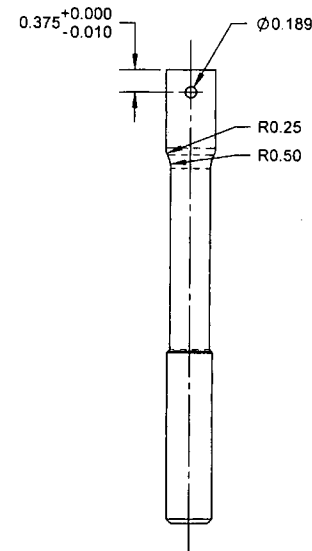
**DETAIL B**  
SCALE 2X  
C6-1



**SECTION A-A**  
D4-1



**D3691-1 STUD**



**RELEASED**  
2010-03-15

SHOP COPY  
RETURNED  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 789.09 M.C.J.  
12/01/17

- NOTES:**
- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
  - 2) FINISH: NONE
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: NONE
  - 7) WEIGHT: 0.81 lb
  - 8) LPI PER QSI 038 4.1.1 (ASTM E1417 LEVEL 2)

D	7.625 WAS 7.750 (ZN C4-1)	RF	10.03.03
C	0.20 WAS 0.18 & CENTER DRILL #4 WAS CENTER DRILL #2 (ZNB8-1); UPDATE NOTE & TO REF QSI (ZN A8-1)	RF	09.09.09
B	CHANGE TO 17-4PH H-900 (ZN A8-1); 0.695 WAS 0.665 (ZN D8-1); REFORMATTED TO CURRENT DWG STANDARDS	RF	08.11.24
A	NEW ISSUE	RF	08.03.12
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3691	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		STUD	NTS
DATE	10.03.03	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



## LIQUID PENETRANT TEST REPORT

P- 12180

CLIENT	<u>VANT AeroSpace</u>	DATE	<u>03/30/2012</u>	PAGE	<u>1</u> OF <u>1</u>
ATTENTION	<u>LINDA LACELLE</u>	ACUREN JOB No.	<u>188-12-00090</u>	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ADDRESS	<u>1770 ABEL DEAN ST</u> <u>Hawkesbury ON.</u>	PO/VO No.	<u>-</u>		
		WORK LOCATION	<u>SAME</u>		
		ACCEPTANCE STD.	<u>ASTM 1417/01-03B</u>	REV./DATE	<u>2005</u>
PROJECT	<u>F.P.T. ON MACHINED PARTS AND CROSS TUBES.</u>				
ITEM(S) EXAMINED	<u>(1) SLEEVES (5) STUDS</u> <u>(5) CROSS TUBES.</u>				

JOB DESCRIPTION	PROCEDURE NO.	LT.	REV./DATE	TECHNIQUE NO.	LT.	REV./DATE
	<u>002</u>		<u>2008</u>	<u>1417/01-03B</u>		<u>2008</u>
PART NO.	<u>SEE RESULTS</u>			MATERIAL	<u>ALUMINUM</u>	
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT</u>			THICKNESS	<u>VARIOUS</u>	
<u>INSPECTION WAS CONDUCTED ON 100% EXTERNAL SURFACE.</u>						

TEST DETAILS						
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED	
FAMILY BRAND	<u>MENAFLEX</u>		BLACK LIGHT S/N	<u>16454</u>	<input type="checkbox"/> OUTPUT > 1000 $\mu$ W/cm <sup>2</sup>	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	<u>ZL67</u>	MINIMUM DWELL TIME	<u>45</u>	MIN.	LIGHTING EQUIP.	<input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	<u>420</u>	MINIMUM DRY TIME	<u>&gt;10</u>	MIN.	OTHER	<u>LAP, NO</u>
DEVELOPER	<u>SKD52</u>	MINIMUM DWELL TIME	<u>10</u>	MIN.	LIGHT METER S/N	<u>1098866</u>
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		CAL DUE DATE	<u>07/28</u> <u>2012</u>

TEST SURFACE						
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL	
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/20°F	<input type="checkbox"/> -4°C/20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F		

RESULTS- ( <input checked="" type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)						
<u>CROSS TUBES</u>						
<u>1)</u>	<u>"</u>	<u>W.O.#</u>	<u>80718</u>	<u>✓</u>	<u>→ Cleared 1 time</u>	
<u>2)</u>	<u>"</u>	<u>"</u>	<u>80719</u>	<u>✓</u>		
<u>3)</u>	<u>"</u>	<u>"</u>	<u>80782</u>	<u>✓</u>		
<u>4)</u>	<u>"</u>	<u>"</u>	<u>78255</u>	<u>✓</u>		
<u>5)</u>	<u>"</u>	<u>"</u>	<u>78256</u>	<u>✓</u>		
<u>11) SLEEVE W.O.# 80362 ✓</u>						
<u>5) STUD W.O.# 78909 ✓</u>						
<u>Scribe</u>						

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions at a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES		DTR # <u>E-63484</u>	
CLIENT REPRESENTATIVE	<u>Andrew Sheldon</u> PRINT	SIGNATURE	<u>[Signature]</u>
TECHNICIAN (SIGNATURE):	<u>[Signature]</u>	REPORT REVIEWED BY:	
NAME (PRINT):	<u>Mike Johns</u>	NAME	INITIALS
1 <sup>st</sup> TECHNICIAN	CGSB LEVEL <u>II</u> SNT LEVEL <u>II</u>	2 <sup>nd</sup> TECHNICIAN	
CGSB REG. NO. <u>66666</u>		CGSB REG. NO.	